Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) An isolated oligonucleotide, the sequence of which consists of SEQ ID NO:1.

2-5. (Canceled)

6. (Withdrawn – currently amended) A method for identifying the number of tandem repeats in the promoter region of a human thymidylate synthase gene, the method comprising:

(a) amplifying a section of genomic DNA that comprises tandem repeats in at least the promoter region of the thymidylate synthase gene, to produce an amplified genomic DNA;

(b) contacting the oligonucleotide of claim 1 with the amplified genomic DNA under [[the]] highly stringent hybridization conditions;

(c) detecting whether hybridization between the oligonucleotide and the amplified genomic DNA has occurred; and

(d) identifying the number of tandem repeats as "two" when hybridization is not detected, and identifying the number of tandem repeats as "three" when hybridization is detected.

7. (Withdrawn) The method of claim 6, further comprising:

(e) contacting the oligonucleotide of claim 1 with the amplified genomic DNA under hybridization conditions that are less stringent than the highly stringent hybridization conditions;

(f) detecting whether hybridization between the oligonucleotide and the genomic DNA has occurred under the less stringent conditions; and

(g) identifying the number of tandem repeats as "two" when hybridization is not detected under the highly stringent conditions but is detected under the less stringent conditions.

8. (Withdrawn) The method of claim 6, wherein the detection step comprises a melting curve analysis.

9. (Withdrawn) The method of claim 6, the method comprising the step of detecting fluorescence resonance energy transfer using (i) the oligonucleotide, labeled at its upstream end with a first fluorescent dye; and (ii) a second oligonucleotide that hybridizes to a second region within the tandem repeat region adjacent to and upstream of the genomic region, wherein the second oligonucleotide is labeled at its downstream end with a second fluorescent dye, and wherein when the two fluorescent dyes are proximal to each other, either the first fluorescent dye transfers fluorescence resonance energy to the second fluorescent dye or the second fluorescent dye transfers fluorescence resonance energy to the first fluorescent dye.

10. (Withdrawn) The method of claim 9, wherein the second oligonucleotide comprises the nucleotide sequence of SEQ ID NO: 2.

11. (Withdrawn) The method of claim 10, wherein the first oligonucleotide comprises the nucleotide sequence of SEQ ID NO: 1.

12. (Withdrawn) The method of claim 9, wherein the two fluorescent dyes are, respectively, FITC and either RED640 or RED705.

13. (Withdrawn) A method for genotyping the thymidylate synthase alleles of a subject, the method comprising:

(a) identifying the number of tandem repeats in the promoter region of the subject's thymidylate synthase alleles by the method of claim 6, and

(b) determining that the thymidylate synthase genotype of the subject is "homozygous 2R/2R" when the number of tandem repeats is identified as only "two," "homozygous 3R/3R" when the number of tandem repeats is identified as only "three," or "heterozygous 2R/3R" when the number of tandem repeats is identified as both "two" and "three".

14. (Withdrawn) A method for predicting the responsiveness of a subject towards an antitumor agent targeting thymidylate synthase, the method comprising:

(a) determining the thymidylate synthase genotype of the subject by the method of claim 13, and

(b) associating the thymidylate synthase genotype with the responsiveness of the subject towards an antitumor agent targeting thymidylate synthase.

15. (Withdrawn) A method for determining the dose and/or the type of an antitumor agent for treating a cancer patient, the method comprising:

(a) determining the thymidylate synthase genotype of the patient by the method of claim 13, and

(b) for a "homozygous 2R/2R" patient, deciding either to: (i) administer a dose of an antitumor agent targeting thymidylate synthase that is lower than the normally used dose of that agent, or (ii) use an antitumor agent that has a different target.

16. (Previously presented) A kit for identifying the number of tandem repeats in the promoter region of a human thymidylate synthase gene, the kit comprising:

(a) a first oligonucleotide, the sequence of which consists of SEQ ID NO:1 or the exact complementary sequence thereof; and

(b) a second oligonucleotide, the sequence of which consists of SEQ ID NO:2 or the exact complementary sequence thereof.

17. (Previously presented) The kit of claim 16, wherein the downstream end of the second oligonucleotide is labeled with FITC, and the upstream end of the first oligonucleotide is labeled with the fluorescent dye RED640 or RED705.

18. (Canceled)

19. (Previously presented) A kit comprising

(a) a first oligonucleotide, the sequence of which consists of SEQ ID NO:1 or the complement thereof; and

(b) a second oligonucleotide, the sequence of which consists of SEQ ID NO:2 or the complement thereof,

each of the oligonucleotides being optionally labeled with a fluorescent dye.

20-23. (Canceled)

24. (Currently amended) An isolated oligonucleotide, the sequence of which consists of SEQ ID NO:2.

25. (Previously presented) The oligonucleotide of claim 1, wherein the oligonucleotide is labeled with a detectable label.

26. (Previously presented) The oligonucleotide of claim 24, wherein the oligonucleotide is labeled with a detectable label.

27. (Previously presented) The kit of claim 17, wherein the upstream end of the first oligonucleotide is labeled with the fluorescent dye RED705.

28. (Previously presented) A kit for identifying the number of tandem repeats in a promoter region of a thymidylate synthase gene, the kit comprising:

(i) the oligonucleotide of claim 1; and

(ii) a second oligonucleotide that hybridizes to the region adjacent to the 5' side of the oligonucleotide of claim 1.

29. (Previously presented) The kit of claim 28, wherein the 5' end of the oligonucleotide of (i) is labeled with the fluorescent dye RED640 or RED705, and the 3' end of the oligonucleotide of (ii) is labeled with the fluorescent dye FITC.

30. (New) The kit of claim 16, wherein the sequence of the first oligonucleotide consists of SEQ ID NO:1 and the sequence of the second oligonucleotide consists of SEQ ID NO:2.

31. (New) The kit of claim 16, wherein the sequence of the first oligonucleotide consists of the exact complement of SEQ ID NO:1 and the sequence of the second oligonucleotide consists of the exact complement of SEQ ID NO:2.

32. (New) The kit of claim 19, wherein the sequence of the first oligonucleotide consists of SEQ ID NO:1 and the sequence of the second oligonucleotide consists of SEQ ID NO:2.

33. (New) The kit of claim 19, wherein the sequence of the first oligonucleotide consists of the exact complement of SEQ ID NO:1 and the sequence of the second oligonucleotide consists of the exact complement of SEQ ID NO:2.